HD1695 S383 A59 1972

SANTA CLARA COUNTY
FLOOD CONTROL AND WATER DISTRICT
SAN JOSE, CALIFORNIA

ANNUAL FINANCIAL ANALYSIS

WATER UTILITY SYSTEM

Prepared
by
Technical Services Division
Public Services Department

February 1972

SANTA CLARA VALLEY WATER DISTRICT
LIBRARY
5750 ALMADEN EXPRESSWAY
SAN JOSE, CALIFORNIA 95118

SANTA CLARA COUNTY
FLOOD CONTROL
WATER DISTRICT
516 EAST MARTHA STREET SAN JOSE, CALIFORNIA 95112
DONALD K. CURRLIN GENERAL MANAGER

February 8, 1972

The Board of Directors
Santa Clara County Flood
Control and Water District
516 East Martha Street
San Jose, California 95112

Gentlemen:

I am pleased to transmit to you the first Annual Financial Analysis of the District's Water Utility System. This report was prepared under the authority of Section 26.5 of the District Act as amended during the 1971 session of the State Legislature. Its purpose is to furnish information describing the physical and financial status of the System and to present recommendations in accordance with the provisions of said Act.

Based on the results of the analyses performed, the report recommends that the District continue to levy groundwater charges on all water extracted from the groundwater basin within the District's Zones W-2, W-3.1, W-3.2 and W-3.3, during the fiscal year 1972-73. It is further recommended that the amount of the charges be established at $30.00 per acre-foot for water extracted for non-agricultural purposes and $8.00 per acre-foot for water extracted for agricultural purposes. I concur with the recommendations presented in this report.

Very truly yours,

D K Currlin
General Manager

TABLE OF CONTENTS

	Page
Introduction	1
The District Water Utility System	2
Water Utility Pricing Policy	5
Water Utility Financing	12
Water Requirements	16
Water Supply	21
Capital Improvement Program	24
Recommendations	34

LIST OF TABLES AND FIGURES

Table 1	Summary of Application of Costs to Taxes and Charges - Water Utility Enterprise	11
Table 2	Summary of Actual Revenues and Expenditures 1968-69 through 1970-71	13
Table 3	Summary of Anticipated Revenue and Expenditures 1971-72	14
Table 4	Summary of Anticipated Revenue and Expenditures 1971-72 (Allocated as per Pricing Policy)	15
Table 5	Recorded North County Water Use 1964-65 through 1970-71	19
Table 6	Summary of Capital Improvements Full Construction Program	28
Table 7	Summary of Required Tax Rates, Water Charges and Reserve Balance - Full Construction Program Financed From Bonds	29
Table 8	Components of County Wide and Service Area Taxes Full Construction Program Financed From Bonds	30
Table 9	Summary of Required Tax Rates, Water Charges and Reserve Balance - Full Construction Program Financed From Available Bonds and Current Revenues	31

TABLE OF CONTENTS

Page

Table 10 Summary of Capital Improvements Reduced Construction Program 32

Table 11 Summary of Required Tax Rates, Water Charges and Reserve Balance - Reduced Construction Program - Financed From Available Bonds and Current Revenues 33

Figure 1 North County Water Requirements 20

Figure 2 North County Water Supply 23

Figure 3 Water Zones 35

Figure 4 North County Treatment and Distribution Facilities 36

INTRODUCTION

This report, the first in a series of annual reports covering the District's activities in protecting and augmenting the water supplies of the District, has been prepared as required by Section 26.5 of the District Act as amended during the 1971 session of the State Legislature. The purpose of the report is to provide information as to the present and future water requirements of the District, the water supply available, future capital improvement and maintenance and operating requirements together with a method of financing such requirements and a financial analysis of the District's water utility system. The report shall also contain a recommendation as to whether or not a groundwater charge should be levied in any zone or zones of the District during the ensuing year, and a proposal for the rate of such charges, if any, for agricultural and non-agricultural water.

THE DISTRICT WATER UTILITY SYSTEM

The present Santa Clara County Flood Control and Water District was created in March 1968 through consolidation of the Santa Clara Valley Water Conservation District (originally formed in 1929) and the Santa Clara County Flood Control and Water District (formed in 1951).

The purpose of the District is to provide for the control and conservation of flood waters and to insure an adequate water supply for present and future beneficial uses within the County of Santa Clara. The water supply function of the District, accomplished through its Water Utility System, is the subject of this report. The System is composed of expanding facilities for the storage and conservation of local water supplies, the importation of supplemental water and the distribution of these supplies for all purposes including groundwater recharge, treatment and irrigation.

Formation of the Santa Clara Valley Water Conservation District was the result of steadily declining groundwater levels in northern Santa Clara Valley following the turn of the century. Organized efforts to conserve winter flood flows were conducted by orchardists as early as 1913. The initial construction work of the District began in 1930, and included development of groundwater recharge facilities in the Campbell, Almaden Valley, Coyote Valley and Penitencia Creek areas. This early program was limited to operation only during natural flow of winter runoff. In 1934 and 1936, two bond issues were approved by the electorate for construction of the first six storage dams designed to conserve surplus winter runoff. Due to success of the program, two additional reservoirs with a total storage capacity in excess of 110,000 acre-feet, together with additional distribution facilities, were constructed in the early 1950's. Expansions in the distribution and groundwater recharge facilities of the District continued through the 1960's.

The Santa Clara County Flood Control and Water District was formed primarily to provide flood protection required for the rapid urban expansion of the County. In the late 1950's, with local water supplies once again incapable of meeting growing demands, the District was authorized to negotiate with the State of California for a supply of imported water from the South Bay Aqueduct. A contract for supplemental water was signed with the State in 1961. Residents within northern Santa Clara County (Zone of Benefit W-1), approved a $42,050,000 bond issue in 1963, for construction of distribution and treatment facilities necessary for optimum utilization of the imported water supply.

The first water delivery from the South Bay Aqueduct was received in June, 1965, and was delivered to Los Gatos Creek for groundwater recharge through the District's Central Pipeline - the first local facility of the in-county system to be completed. In 1967, the Rinconada Water Treatment Plant was completed and the District delivered initial treated water to the residents of the west portions of northern Santa Clara County through its West Pipeline and Santa Clara and Campbell Distributaries.

With the merger of the two water districts in 1968, the responsibility for solving the growing water problems of the north and central portions of the county were vested in a single public agency. In the southern portion of the county, the South Santa Clara Valley Water Conservation District remains as an independent agency, having constructed Uvas and Chesbro Dams for the capture of winter runoff for groundwater recharge along Uvas and Llagas Creeks.

WATER UTILITY PRICING POLICY

The major projects constructed by the former Santa Clara Valley Water Conservation District were financed by means of general obligation bonds. Until the 1964-65 fiscal year, the repayment of these bonds, as well as the District's operation and maintenance expenses, were funded by ad valorem taxes levied within the District.

With the signing of the water supply contract between the State of California and the Santa Clara County Flood Control and Water District, an advisory board consisting of representatives from the County and each incorporated city was convened to recommend a policy for establishing tax rates and non-agricultural water charges. A separate advisory board was convened to define agricultural water and to establish appropriate water charges therefor.

The appointed advisory boards defined a comprehensive policy which was approved by the District Board of Supervisors in March 1963. This policy contained four components of charges consisting of a 5-cent county-wide ad valorem tax, a basic groundwater and surface water charge for water used for other than agricultural purposes, a treatment and distribution charge, and a groundwater and surface water charge for water used for agricultural purposes.

The county-wide ad valorem tax was to be levied as a measure of the benefit from the South Bay Aqueduct. However, since several of the North County cities had already contracted for a supply from the Hetch Hetchy

Aqueduct of the City and County of San Francisco, a portion (up to 60 percent) of the ad valorem tax derived from those cities was to be returned to the city as a measure of the benefit of that imported supply.

The groundwater charges were to be levied on all water pumped from the underground basin within a defined zone (W-2), which zone was established to include those areas of the north county that would benefit from the recharge of the groundwater basin with local and imported water. The surface water charges were to be levied on all imported waters diverted from District facilities or supplied by the District via natural channels regardless of location. The imposition of a groundwater extraction charge required the registration of almost 5,000 wells, of which approximately 3,200 were active, and the installation of almost 600 meters on the largest producers.

The treatment and distribution charge was to be added to the groundwater charge to determine the total charge for water delivered from the proposed treatment plants. This charge was to be calculated based on the total cost (bond amortization and O & M costs) of the treatment plant plus one-half of the total cost of the treated water delivery pipelines.

The 5-cent county-wide ad valorem tax was first levied in the 1963-64 fiscal year, and the following year (1964-65) groundwater charges were implemented. Concurrent with the levy of groundwater charges by the Santa Clara County Flood Control and Water District, the Santa Clara Valley Water Conservation District converted from ad valorem taxes to groundwater and surface water charges in the North County portion of the District. A cooperative agreement was instituted whereby the Flood Control District would handle the collection of groundwater charges for both Districts and the Conservation District would handle the collection of all surface water charges.

Completion of the first portions of the treated water system was accomplished in 1967, when the Rinconada Water Treatment Plant began operation and delivery of treated water through the West Pipeline and Santa Clara and Campbell Distributaries was initiated.

During the next two years, operational experience and contract management under the 1963 pricing policy indicated the advisability of encouraging increased use of water from the Rinconada Plant. As a result interim contract amendments which provided for an increase in the deliveries of treated water were negotiated covering the 1969-70 and 1970-71 fiscal years. At the same time, because of the large volume of local water in storage for groundwater recharge, a surplus water program was instituted whereby the treated water contractors could purchase treated water over and above contract amounts at a substantially reduced rate. The success of this program made it apparent that if substantial amounts of treated water were to be delivered to reduce the pumping from the underground basin, or at least to avert excessive increases in pumping, appropriate pricing policies would need to be formulated. It was with this in mind that work started in 1970 to develop a more flexible approach to the now combined Districts' management of the county's water resources.

After several months of review, analysis and evaluation, a revised pricing policy was proposed to the District's Board of Directors in January 1971. The proposal was referred to the Santa Clara County Water Commission, the same advisory board that had considered the earlier pricing policy, for review and recommendations. Review and ratification of the revised pricing policy by the Commission was completed on April 7, 1971. On April 13, 1971, the District's Board of Directors adopted the policy and established water charges for fiscal 1971-72, in accordance with provisions of its new taxation and pricing program.

The new taxation and pricing program is designed to relate the various charges and ad valorem taxes to benefit received from the District's Water Utility System. Basically, the new policy adopts a "pooling" concept for both the water resources of the county and those local facilities required for overall water management, isolating only those costs which relate to separable benefits. This results in four water or tax rates associated with particular benefits, plus a treated water surcharge which may be changed to reflect the changing economic relationship between groundwater pumping costs and the cost of treated water.

The first class of benefits separated are the values to the various flood control zones derived from the existence of the conservation reservoirs. While the reservoirs were designed and constructed primarily for water conservation purposes, they effect significant reduction in the peak flows for the more frequent floods and consequently represent a flood control value. A portion of the capital and operation and maintenance costs are therefore repaid to the water utility from the tax revenue of the flood control zone in which a particular reservoir is situated.

Another class of separable benefits which are recognized by the new policy relate to expenditures associated with future service. These include costs allocated to excess capacity of facilities and the District's program of groundwater replenishment above current use. As these programs are of primary benefit to future development, not current water users, their costs are assigned to ad volorem taxes within the service area or zone of benefit.

The capital cost of water importation facilities, consisting presently of only the South Bay and Hetch Hetchy Aqueducts, and a portion of the capital and O & M costs of the reservoirs which can be allocated to recreation, are assigned as general benefits to the whole county. These costs are therefore repaid through a county-wide ad valorem tax. The capital cost of the Hetch-Hetchy Aqueduct is measured by the tax refund to the cities receiving water from the Hetch Hetchy Aqueduct based on the same fomula as was used in the previous pricing policy.

All other costs, incl uding unallocated local operation and maintenance and capital costs, together with the operation and maintenance and other non-capital costs of importing water above that used for replenishment of the accumulated overdraft, are repaid through the basic user or groundwater charge.

Pricing for treated water sales is composed of the basic water-user charge plus a treated water surcharge which has been established at $35.00 per acre-feet for fiscal year 1971-72.

The treated water surcharge is established in an amount by the Board of Directors to achieve overall water resources management objectives of the District. The charge may be modified as required to maintain equality and balance between groundwater and treated water usage. Revenues derived from the surcharge may be applied to the reduction of basic user charges or service area taxes, or they may be retained for placement into construction reserves.

A summary of the composite policy relating to the application of costs to taxes and charges is shown in Table 1.

TABLE 1

SUMMARY OF APPLICATION OF COSTS TO TAXES AND CHARGES

WATER UTILITY ENTERPRISE

Cost	County Wide Tax	Service Area Zone Tax	Basic User Charge	Flood Control Zone Taxes
Capital Cost Import Facilities	X			
Recreation Benefit(1)	X			
Flood Control Benefit(2)				X
Water Purchases(3) Import Facilities			X	
Maintenance & Operation Import Facilities			X	
Maintenance & Operation Local Facilities			X	
Capital Cost Local Facilities		X(4)	X	
Basin Replenishment(5)		X		

---

(1) Reservoirs and certain percolation facilities

(2) Reservoirs

(3) State Delta Water Charge and USBR Storage Charge (Future)

(4) Limited to Allocated Cost of Excess Capacity

(5) Includes Delta Water Charge and Variable O & M costs only

WATER UTILITY FINANCING

As described in the preceding section, the District Water Utility System is financed through a combination of ad volorem taxes and water charges. Operation and maintenance expenses, generally classified as operating expenses, are divided into five classes or cost centers. Other expenses include the repayment of bond principal and interest (debt service) and the tax refund (In-County credit) to those cities purchasing water from the Hetch-Hetchy Aqueduct. A summary of the revenues and expenses of the District's Water Utility Enterprise for the past three years is shown in Table 2. Presented in Table 3 are anticipated expenditures and revenues for fiscal year 1971-72.

The budget expenditures and anticipated revenues for fiscal 71-72, presented in accordance with the new pricing policy, are shown in Table 4. It should be noted that this budget reflects the result of numerous past studies performed to determine the effect of future construction programs on the various tax rates and water charges required under the new policy. It incorporates revenues from the basic user charge and the service area zone tax established on the basis of a 5-year period of analysis.

TABLE 2

SUMMARY OF ACTUAL REVENUES AND EXPENDITURES

1968-69 through 1970-71

		1968-69	1969-70	1970-71
I.	Revenues:			
	Water Charges:			
	Groundwater	3,835,044	3,906,265	3,787,784
	Surface Water	73,471	93,891	107,098
	Treated Water	694,911 (1)	1,945,034 (2)	2,291,375 (2)
	TOTAL	4,603,426	5,945,190	6,186,257
	Non-Operating Revenues:			
	Taxes	1,119,112 (3)	1,263,193 (3)	1,873,513 (4)
	Interest on Investment	404,702	384,709	327,030
	Other	27,880	68,927	69,587
	TOTAL	1,551,694	1,716,829	2,270,130
	TOTAL REVENUES	6,155,120	7,662,019	8,456,387
II.	Expenses:			
	Operating Expenses:			
	Source of Supply	2,529,055	2,991,956	2,768,264
	Raw Water T&D	746,787	796,755	829,412
	Water Treatment	546,787	739,537	829,165
	Treated Water T&D	104,066	153,262	230,188
	General & Admin.	443,062	376,783	400,371
	TOTAL	4,369,757	5,058,293	5,057,400
	Non-Operating Expenses:			
	Debt Service	1,962,033	2,238,805	2,155,074
	In-County Credit	194,249	169,905	255,130
	TOTAL	2,156,282	2,408,710	2,410,204
	TOTAL EXPENSES	6,526,039	7,467,003	7,467,604
Excess of Revenue over Expenses		(370,919)	195,016	988,783

(1) Includes both groundwater charge and treatment and distribution charge

(2) Includes charges in Note (1) and represents total of contract amounts and surplus water

(3) Includes 5-cent county-wide tax revenue and revenue from a 37-cent tax on land only in Zone W-3 (portion of former conservation District south of Metcalf Rd.)

(4) Includes 5-cent county-wide tax revenue, revenue from a 2.1-cent tax in Zone W-1 and the revenue from a 37-cent tax in Zone W-3.

TABLE 3

SUMMARY OF ANTICIPATED REVENUES AND EXPENDITURES

1971-72

I.	Revenues:	
	Water Charges:	
	Groundwater	$4,576,000
	Surface Water	82,350
	Treated Water	1,976,000
	TOTAL	$6,634,350
	Non-Operating Revenues:	
	Taxes	$2,343,107
	Interest on Investments	142,500
	Other	186,272
	TOTAL	$2,671,879
	TOTAL REVENUES	$9,306,229
II.	Expenses:	
	Operating Expenses:	
	Source of Supply	$3,807,614
	Raw Water T&D	1,713,961
	Water Treatment	1,016,233
	Treated Water T&D	505,648
	General & Admin.	493,219
	TOTAL	$7,536,675
	Non-Operating Expenses:	
	Debt Service	$2,142,778
	In-County Credit	302,750
	TOTAL	$2,445,528
	TOTAL EXPENSES	$9,982,203
Excess of Revenue over Expenses		($ 675,974)

(1) Includes both basic user charge and treated water surcharge.

(2) Includes 6.7-cent county-wide tax revenue, revenue from a 1.7-cent tax in Service Area Tax Zone (Zone W-1) and the revenue from a 37-cent tax in Zone W-3.

TABLE 4

SUMMARY OF ANTICIPATED EXPENDITURES AND ESTIMATED REVENUES
1971-72

	County-wide Tax	Service Area Tax	Basic User Charge	Flood Control Zone Taxes		
				N/W Zone	C Zone	E Zone
Capital Cost-Import Facilities						
South Bay Aqueduct	$1,504,953					
Hetch-Hetchy Aqueduct (Rebate)	302,750					
Recreation Benefit (Allocated)	100,558					
Flood Control Benefit (Allocated)				$1,918	$31,906	$14,720
Water Purchases-Import Facilities			$,231,989			
Operation & Maintenance - Import Facilities			581,639			
Operation & Maintenance - Local Facilities			2,827,166			
Capital Cost-Local Facilities		$,443,035	3,064,835			
Basin Replenishment		876,734				
TOTAL COST	$1,908,261	$1,319,769	$6,705,629	$1,918	$31,906	$14,720
Treated Water Surcharge Revenue		1,064,000		-	-	-
	$1,908,261	$ 255,769	$6,705,629	$1,918	$31,906	$14,720
M&I Ground & Surface Water Charges and County-wide and Zone Taxes (ex. Zone W-3)	1,887,858	393,535	5,308,900	$1,918	$31,906	$14,720
	20,403	(137,766)	$1,396,729	0	0	0
Other Revenue*	-	-	603,392	-	-	-
Excess of Expenses over Revenue	$ 20,403	$ (137,766)	$ 793,337	0	0	0

* Includes Agricultural Groundwater charges, Surface Water charges, Income on Investments, Zone W-3 tax revenue and other income.

WATER REQUIREMENTS

Any proposed schedule of future capital improvements for the District's Water Utility System must logically be based on an analysis of past and present water demands, a projection of the magnitude and geographical distribution of future water demands and an analysis of the present and future sources of supply necessary to meet the overall water requirements of Santa Clara County. Such studies and analyses were performed for the North Santa Clara County area during the 1970-71 fiscal year and will be summarized here. A major study of the central and southern portions of the county is currently being finalized. However, since it appears that supplemental water will not be required in this area for some years and the area financially participates in the present District program only through the county-wide tax, the present ad valorem tax in Zone W-3, and groundwater charges in several small subzones within Zone W-3, this report will consider only the North County area.

Since 1964 when the groundwater charge was instituted, the District has compiled records of the water use in the North County. For purposes of this report, only that information beginning in 1964-65 is shown. This period is sufficient to indicate trends and was used as a basis for determining unit use factors for future years. Table 5 shows the recorded agricultural, non-agricultural and total water use for each year during the period from 1964-65 through 1970-71. Figure 1 shows this total water demand graphically, together with the expected demand during the next twenty years.

As shown on Figure 1, agricultural use of both groundwater and surface water is expected to decline to less than one-half of the present use during the next 20 years. This is primarily because of the expansion of the urban areas and the increasingly unfavorable economic status facing agriculture in northern Santa Clara County. It will also be noted that the recorded water use exhibits a great deal of variability due to the fact that agricultural water use is extremely sensitive to both the amount and seasonal distribution of rainfall. The projected demands are, of necessity, based on "average" or "normal" conditions.

The use of the underground basin to supply non-agricultural water has varied since 1964-65, although it is not as sensitive to rainfall variations as is agricultural use. Referring to Table 4, it will be noted that non-agricultural use of groundwater generally increased until 1969-70 when a significant decrease occurred due to the District's surplus water program. Under this program the District's treated water contractors obtained additional treated water - over and above their contract amounts - at a substantially reduced price. Sales of surplus water amounted to approximately 20,000 A/F in both 1969-70 and 1970-71. Because of its temporary nature, projections of future use of the groundwater basin for supplying municipal and industrial water did not consider the availability of surplus treated water. Rather it assumed continued pumping at a rate of about 145,000 A/F per year, the approximate rate of pumping that would have occurred during 1969-70 and 1970-71, had the surplus water program not been available.

Surface diversions of local water for non-agricultural purposes, consisting primarily of San Jose Water Works diversions in the Los Gatos Creek watershed, were also continued at a constant level of 13,000 A/F per year based on recently recorded information.

Deliveries of water from the Hetch-Hetchy Aqueduct of the City and County of San Francisco are expected to continue to increase, even though temporary reductions may be experienced by those contracting cities who also choose to contract for a supply of treated water from this District. The increased deliveries were also assumed to continue beyond the expiration of the present contracts.

Deliveries of District treated water are contracted for in specific quantities through 1975-76, and are expected to continue to increase throughout the period studied.

It must be noted here that these future water requirements are the District's present best estimates. Changing future conditions may alter the projected requirements with a resultant change in the schedule of construction of future facilities. For example, the 1970 census data indicated a reduced rate of growth in the county during the late 1960's in comparison with that experienced during the early 1960's. This fact has been considered in estimating future water demands, although the actual growth may be different from that assumed in the analyses.

TABLE 5

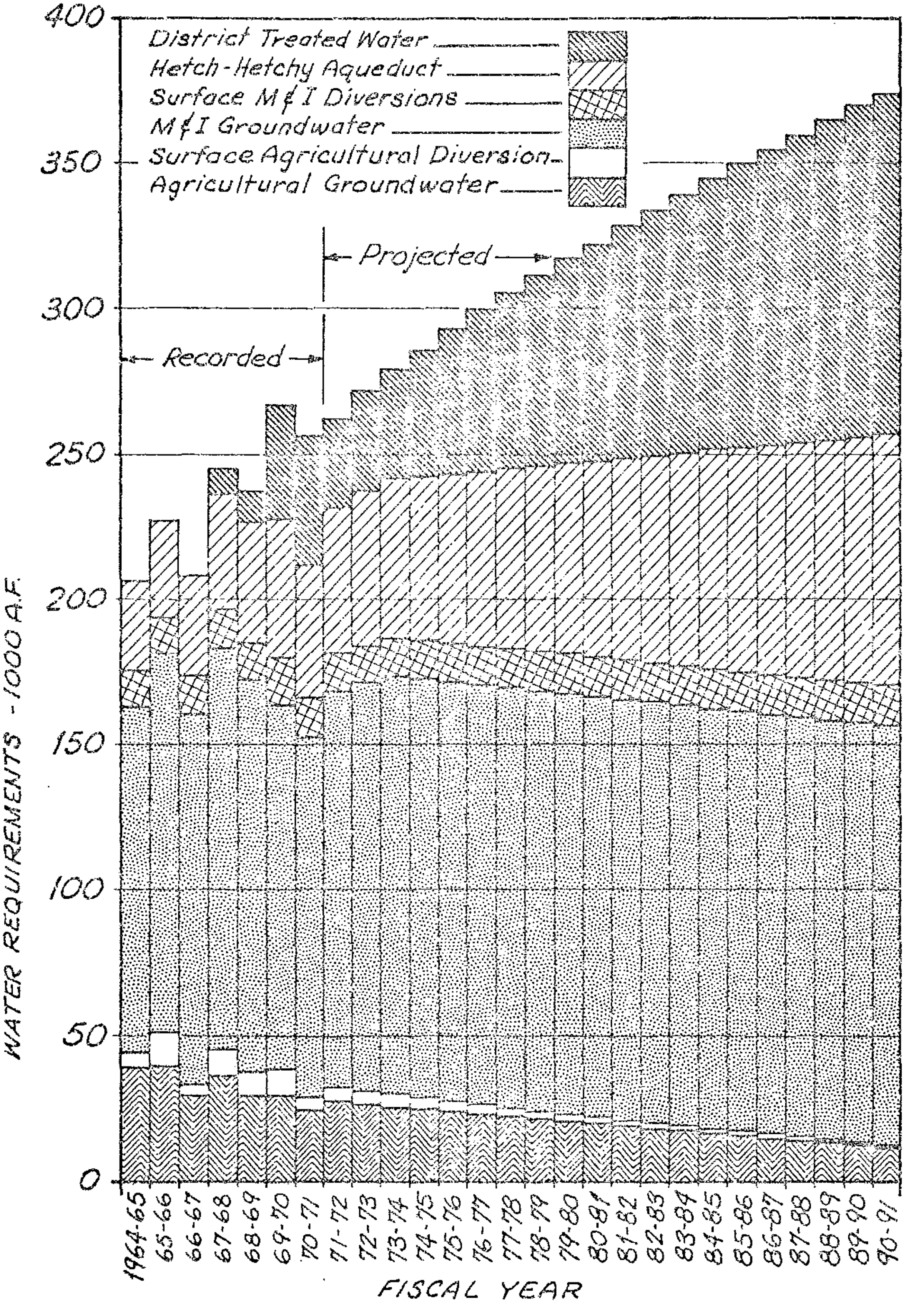
RECORDED NORTH COUNTY WATER USE

	Agricultural Water Use			Municipal and Industrial Water Use					
Fiscal Year	Ground-water	Surface Water	Total	Ground-water	Treated Water	Hetch-Hetchy Aqueduct Deliveries	Other Surface Water*	Total	Total Water Use
1964-65	37,935	5,593	43,528	119,618	--	29,536	12,991	162,145	205,673
1965-66	38,463	11,597	50,060	130,786	--	33,572	12,434	176,792	226,852
1966-67	28,863	3,447	32,310	127,550	--	35,784	12,795	176,129	208,439
1967-68	35,470	9,115	44,585	138,285	8,151	39,902	13,863	200,201	244,786
1968-69	28,501	8,305	36,806	135,058	11,446	41,675	12,881	201,060	237,866
1969-70	29,092	8,835	37,927	125,937	39,168	47,203	16,833	229,141	267,068
1970-71	23,689	4,686	28,375	124,156	44,377	45,288	14,113	227,934	256,309

*Includes Diversion by San Jose Water Works and Surface Delivery of Untreated M&I Water by District

FIGURE 1

NORTH COUNTY WATER REQUIREMENTS



WATER SUPPLY

North Santa Clara County presently draws upon three sources of water; the local supply, the South Bay Aqueduct and the Hetch-Hetchy Aqueduct. The local supply is utilized both through groundwater pumpage and surface diversions as is the supply from the South Bay Aqueduct (a portion of the supply being used for groundwater recharge). The supply from the Hetch-Hetchy Aqueduct is utilized soley through surface diversions or deliveries.

During the years prior to 1961, the local supply was the only significant source of water for Santa Clara County being utilized almost exclusively through groundwater pumpage. As the demand continued to increase and with the construction of a branch of the Hetch-Hetchy Aqueduct in Santa Clara County, several of the North-County cities entered into contracts with the City of San Francisco for supplemental delivery of water. In order to accomodate the primary demand for supplemental water, a supply from the State of California's South Bay Aqueduct was secured. This contract provided for a delivery of 88,000 acre-feet per year. The contract was later amended to provide for a delivery of 100,000 acre-feet per year beginning in 1994.

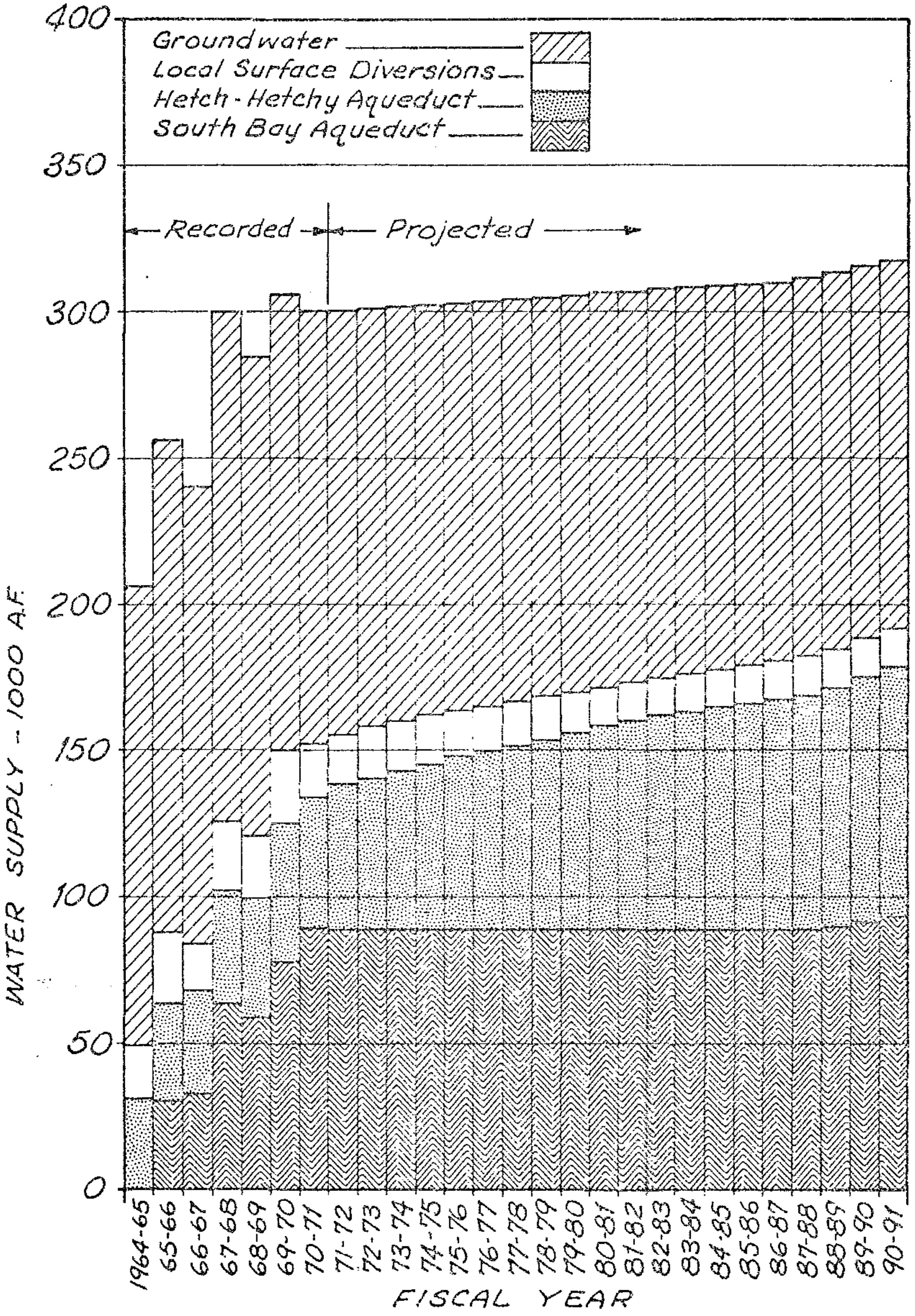
Figure 2 graphically depicts the various components of the water supply presently available to North Santa Clara County. The District's South Bay Aqueduct past deliveries and future entitlements are shown as the base of the graph. To this is added the projected deliveries from the Hetch-Hetchy Aqueduct as shown on Figure 1, Water Requirements. The local supply as shown is separated into surface supply (matching the agricultural and non-agricultural requirements shown in Figure 1) and groundwater supply.

The groundwater supply indicated is based on an estimate of the safe yield of the groundwater basin without the recharge of imported water, i.e., it reflects only natural recharge and artificial recharge of locally conserved water using the District's present system and operating criteria.

A comparison of the water requirements shown in Figure 1 and the available water supply shown in Figure 2 indicates the need for additional supplemental water during the latter part of this decade. Provided additional sources become available, it is probable that through the development of additional off-stream percolation facilities the yield of the groundwater basin could be significantly increased.

At the present time, the primary additional source of water necessary to meet the County's increasing requirements is expected to be the San Felipe Division of the U. S. Bureau of Reclamation Central Valley Project. This project, which has been authorized by Congress although not yet funded for construction, is not expected to be completed until the early 1980's. When completed, however, it will together with presently available supplies ensure an adequate supply of water for all of Santa Clara County for the foreseeable future. Other sources of supply under study by the District are the reclamation of waste water and the conservation of additional local streamflow.

FIGURE 2
NORTH COUNTY WATER SUPPLY



CAPITAL IMPROVEMENT PROGRAM

Growth projected for North Santa Clara County, and its associated requirements for water supply, clearly establishes the general need for additional facilities in the District's Water Utility System. System expansion will include facilities to provide storage;conservation, treatment and distribution of available water supply. Although growth is imminent, its rate and pattern cannot be precisely predicted. Therefore, the District's program is formulated to provide maximum flexibility for accomodating variations in demand as well as sources of supply.

Table 6 presents these additional facilities which current investigations indicate will be required during the period 1971-72 through 1980-81. The tabulation notes the assumed period of construction and estimated capital cost of each facility. Included is the construction of a water treatment and distribution system serving the eastern part of the North County area. This system would consist of the Penitencia Water Treatment Plant, Evergreen Pipeline, Evergreen Reservoir, and Milpitas Pipeline. Also included are a treated water pipeline to serve the City of Mountain View, a connection with the Hetch-Hetchy Aqueduct in Milpitas to provide for emergency water service, the purchase of land for and initial development of off-stream groundwater recharge areas, expansions of both Penitencia and Rinconada water treatment plants as the demand requires, the enlargement of Calero Reservoir, and the construction of an extension of the Almaden Valley Pipeline from its present terminous to the enlarged Calero Reservoir. The purchase of land for additional off-stream groundwater recharge ponds has been scheduled for the period 1971-72 through 1975-76, a period during which satisfactory sites are expected to remain available. The cost of enlarging Calero Reservoir assumes that the full Davis-Grunsky grant applied for by the District will be available. The timing of the Calero Project, as well as that of the extension of the Alamden Valley Pipeline, was established to provide storage of off-peak deliveries from the South Bay Aqueduct to ensure that the water treatment plants will be able to meet the District's treated water contract peaking requirements.

Table 7 indicates the tax rates and water charges required, together with the reserves developed from the revenue from a $35 per acre-foot treated water surcharge, assuming that the construction of those projects listed in Table 5 is financed from bond sales. Table 8 shows a further breakdown of the components of the County-wide and Service Area Taxes. As shown in the last column of Table 7, the treated water surcharge develops a reserve of $9,018,000 during the period 1972-73 through 1975-76, a reserve that accumulates to $20,856,000 by the end of 1980-81. This reserve could be applied to reduce the Basic User Charge and/or the Service Area Tax. Such an application of the total reserve would permit reduction of the groundwater charge to $30.00 per acre-foot, the present legal limit, and elimination of the Service Area Tax for the period 1972-73 through 1980-81. Such an application would, however, also elimate all of the cumulative reserve.

Table 9 depicts the deficit accumulated on the assumption that the Service Area Tax Rate and the Basic User Charge are set at the current rates for 10 years, the County-wide tax is limited to its current rate, a portion of the additional facilities are constructed from the presently available bond funds, and the remaining facilities are constructed from current revenues. As shown, a cumulative deficit of $17,551,000 is experienced through 1980-81. Coupled with the surplus of $3,036,000 at the end of 1971-72, this reflects a cash expenditure in excess of revenues of $20,587,000 during the period 1972-73 through 1980-81. Recovery of this amount would require an increase in the Basic User Charge to $40.69 per acre-foot for the period 1972-73 through 1980-81 or a lesser increase in the Basic User Charge plus an increase in the Service Area Tax rate.

Table 11 shows the effect of reducing the expenditures by eliminating from the construction schedule the enlargement of Calero Reservoir, the extension of the Almaden Valley Pipeline, the development of the land purchased for additional off-stream recharge ponds and the expansion of Rinconada Water Treatment Plant. This reduced construction schedule is shown in Table 10. While such a reduced construction schedule does approximately balance, within the accuracy of the cost estimates, the expenditures against the sum of the revenues and the initial cash reserves and holds both the Service Area Tax rate and the Basic User Charge at the present rates, it does not provide for the logical and necessary expansion of the water utility system.

In summary, while it is apparent from the tables that the District can continue its present tax rates and the $30.00 per acre-foot Basic User Charge through 1975-76, or through the current 5 year rate period, construction of all necessary additional facilities during the following rate period, 1976-77 through 1980-81, will require either the approval of additional bonds or an increase in rates.

TABLE 6

SUMMARY OF CAPITAL IMPROVEMENTS
FULL CONSTRUCTION PROGRAM

Facility	Construction Period	Estimated Capital Cost *
Percolation Facilities		
Land Acquisition	1971-72 through 1975-76	$ 1,811,000
Development	1976-77 through 1980-81	1,678,000
Penitencia Water Treatment Plant	1972-73 through 1973-74	4,736,000
Evergreen Pipeline	1972-73 through 1973-74	3,986,000
Mountain View Distributary	1973-74	447,000
Evergreen Pipeline Extension and Evergreen Reservoir	1976-77	2,807,000
Milpitas Pipeline	1976-77	1,533,000
Hetch-Hetchy Aqueduct Connection	1976-77	1,014,000
Calero Reservoir Enlargement	1976-77 through 1977-78	1,534,000
Almaden Valley Pipeline Unit II	1976-77 through 1977-78	9,434,000
Penitencia WTP Expansion	1976-77 through 1977-78	3,978,000
Rinconada WTP Expansion	1978-79 through 1979-80	4,369,000
		$ 37,327,000

* Adjusted to date of construction.

TABLE 7

SUMMARY OF REQUIRED TAX RATES, WATER CHARGES AND RESERVE BALANCE
FULL CONSTRUCTION PROGRAM FINANCED FROM BONDS
TREATED WATER SURCHARGE AT $35 PER ACRE-FOOT

Year	County-Wide Tax ($/$100)	Service Area Tax ($/$100)	Basic User Charge ($/$100)	Flood Control Zone Taxes NW Zone ($/$100)	C Zone ($/$100)	E Zone ($/$100)	Annual Construction Reserve ($)	Cumulative Construction Reserve ($)
1971-72	$0.0670*	$0.017*	$30.00*	$0.0006	$0.0037	$0.0034	-$ 660,000	+$ 3,036,000
1972-73	0.0751	0.0394	30.16	0.0004	0.0016	0.0033	+1,218,000	+ 4,254,000
1973-74	0.0740	0.0309	29.06	0.0004	0.0016	0.0032	+1,337,000	+ 5,591,000
1974-75	0.0606	0.0359	32.56	0.0005	0.0016	0.0027	+1,631,000	+ 7,222,000
1975-76	0.0540	0.0281	33.39	0.0007	0.0016	0.0013	+1,796,000	+ 9,018,000
5-Year average	$0.0658	$0.0334‡	$31.36	$0.0005	$0.0020	$0.0027		
1976-77	$0.0522	$0.0210	$34.13	$0.0006	$0.0015	$0.0011	+$1,956,000	+$10,974,000
1977-78	0.0505	0.0169	36.98	0.0006	0.0013	0.0011	+ 2,188,000	+ 13,162,000
1978-79	0.0490	0.0199	42.59	0.0006	0.0012	0.0011	+ 2,384,000	+ 15,546,000
1979-80	0.0475	0.0169	43.67	0.0006	0.0012	0.0011	+ 2,566,000	+ 18,112,000
1980-81	0.0472	0.0249	45.91	0.0005	0.0012	0.0010	+ 2,744,000	+ 20,856,000
5-Year average	$0.0492	$0.0200	$40.82	$0.0006	$0.0013	$o.0011		

* Rates established for 1971-72
‡ 4-Year average (excludes 1971-72)

TABLE 8

COMPONENTS OF COUNTY WIDE AND SERVICE AREA TAX WITH FULL CONSTRUCTION PROGRAM FINANCED FROM BONDS AND NO REDUCTION FROM TREATED WATER SURCHARGE

YEAR	COUNTY WIDE TAX							SERVICE AREA TAX				
	State & Federal Facilities Capital Cost		Hetch-Hetchy Facilities Capital Cost (Rebate)		Recreation Benefit		Total Tax Rate	Local Facilities Excess Capacity		Basin Replenishment		Total Tax Rate
	Cost ($1000)	Related Tax Rate	Cost ($1000)	Related Tax Rate	Cost ($1000)	Related Tax Rate		Cost ($1000)	Related Tax Rate	Cost ($1000)	Related Tax Rate	
1971-72	$1,505	.0530	$ 291	.0102	$ 110	.0039	.0671*	$ 429	.0185	$ 776	.0334	.0519‡
1972-73	1,813	.0610	345	.0116	76	.0025	.0751	368	.0135	704	.0259	.0394
1973-74	1,862	.0600	358	.0115	79	.0025	.0740	335	.0118	542	.0191	.0309
1974-75	1,573	.0486	308	.0095	79	.0025	.0606	688	.0233	373	.0126	.0359
1975-76	1,460	.0434	287	.0085	70	.0021	.0540	609	.0198	253	.0083	.0281
5-year average	8,213	.0529	1,589	.0102	414	.0027	.0658	2,429	.0175	2,648	.0190	.0365
1976-77	1,465	.0419	291	.0083	72	.0020	.0522	522	.0164	146	.0046	.0210
1977-78	1,468	.0404	294	.0081	74	.0020	.0505	520	.0157	38	.0012	.0169
1978-79	1,472	.0391	297	.0079	74	.0020	.0490	681	.0199	0	0	.0199
1979-80	1,474	.0379	300	.0077	76	.0019	.0475	599	.0169	0	0	.0169
1980-81	1,509	.0375	309	.0077	80	.0020	.0472	910	.0249	0	0	.0249
5-year average	7,388	.0393	1,491	.0079	376	.0020	.0492	3,232	.0189	184	.0011	.0200

* Set at $0.0670
‡ Set at $0.017

TABLE 9

SUMMARY OF TAX RATES, WATER CHARGES AND RESERVE BALANCE
FULL CONSTRUCTION PROGRAM
FINANCED FROM AVAILABLE BONDS AND CURRENT REVENUES
SERVICE AREA TAX RATE AND BASIC USER CHARGE HELD AT 1971-72 LEVELS
COUNTY-WIDE TAX RATE LIMITED TO 1971-72 LEVEL
TREATED WATER SURCHARGE AT $35 PER ACRE-FOOT

				Flood Control Zone Taxes				
Year	County-Wide Tax ($/$100)	Service Area Tax ($/$100)	Basic User Charge ($/A/F)	NW Zone ($/$100)	C Zone ($/$100)	E Zone ($/$100)	Annual Construction Reserve ($)	Cumulative Construction Reserve ($)
1971-72	$0.0670	$0.017	$30.00	$0.0006	$0.0037	$0.0034	-$ 660,000	+$ 3,036,000
1972-73	0.0670	0.017	30.00	0.0004	0.0016	0.0033	+ 373,000	+ 3,409,000
1973-74	0.0670	0.017	30.00	0.0004	0.0016	0.0032	+ 416,000	+ 3,825,000
1974-75	0.0606	0.017	30.00	0.0005	0.0016	0.0027	+ 83,000	+ 3,908,000
1975-76	0.0539	0.017	30.00	0.0007	0.0016	0.0013	+ 285,000	+ 4,193,000
5-Year Average	$0.0573*	$0.017	$30.00	$0.0005	$0.0020	$0.0027		
1976-77	0.0522	0.017	30.00	0.0006	0.0015	0.0011	-$ 3,614,000	+$ 579,000
1977-78	0.0505	0.017	30.00	0.0006	0.0013	0.0011	- 14,255,000	- 13,676,000
1978-79	0.0490	0.017	30.00	0.0006	0.0012	0.0011	+ 347,000	- 13,329,000
1979-80	0.0475	0.017	30.00	0.0006	0.0012	0.0011	- 4,063,000	- 17,392,000
1980-81	0.0471	0.017	30.00	0.0005	0.0012	0.0010	- 159,000	- 17,551,000
5-Year Average	$0.0492	$0.017	$30.00	$0.0006	$0.0013	$0.0011		

* Average for last 2 years.

TABLE 10

SUMMARY OF CAPITAL IMPROVEMENTS
REDUCED CONSTRUCTION PROGRAM

Facility	Construction Period	Estimated Capital Cost *
Percolation Facilities		
Land Acquisition	1971-72 through 1975-76	$ 1,811,000
Penitencia Water Treatment Plant	1972-73 through 1973-74	4,736,000
Evergreen Pipeline	1972-73 through 1973-74	3,986,000
Mountain View Distributary	1973-74	447,000
Evergreen Pipeline Extension and Evergreen Reservoir	1976-77	2,807,000
Milpitas Pipeline	1976-77	1,533,000
Hetch-Hetchy Aqueduct Connection	1976-77	1,014,000
Penitencia WTP Expansion	1976-77 through 1977-78	3,978,000
		$20,312,000

* Adjusted to date of construction

TABLE 11

SUMMARY OF TAX RATES, WATER CHARGES AND RESERVE BALANCE
REDUCED CONSTRUCTION PROGRAM
SERVICE AREA TAX RATE AND BASIC USER CHARGE HELD AT 1971-72 LEVELS
COUNTY-WIDE TAX RATE LIMITED TO 1971-72 LEVEL
TREATED WATER SURCHARGE AT $35 PER ACRE-FOOT

				Flood Control Zone Taxes				
Year	County-Wide Tax ($/$100)	Service Area Tax ($/$100)	Basic User Charge ($/A/F)	NW Zone ($/$100)	C Zone ($/$100)	E Zone ($/$100)	Annual Construction Reserve ($)	Cumulative Construction Reserve ($)
1971-72	$0.067	$ 0.017	$ 30.00	$0.0006	$ 0.0037	$0.0034	_$ 660,000	+$ 3,036,000
1972-73	0.067	0.017	30.00	0.0004	0.0016	0.0033	+ 373,000	+ 3,409,000
1973-74	0.067	0.017	30.00	0.0004	0.0016	0.0032	+ 416,000	+ 3,825,000
1974-75	0.0606	0.017	30.00	0.0005	0.0016	0.0027	+ 83,000	+ 3,908,000
1975-76	0.0539	0.017	30.00	0.0007	0.0016	0.0013	+ 285,000	+ 4,193,000
5-Year Average	$0.0573 *	$ 0.017	$ 30.00	$0.0005	$ 0.0020	$ 0.0027		
1976-77	$0.0522	$ 0.017	$ 30.00	$0.0006	$ 0.0015	$0.0011	-$ 3,309,000	+$ 884,000
1977-78	0.0505	0.017	30.00	0.0006	0.0013	0.0011	- 2,968,000	- 2,084,000
1978-79	0.0490	0.017	30.00	0.0006	0.0012	0.0011	+ 719,000	- 1,365,000
1979-80	0.0475	0.017	30.00	0.0006	0.0012	0.0011	+ 710,000	- 655,000
1980-81	0.0471	0.017	30.00	0.0005	0.0012	0.0010	+ 623,000	- 32,000
5-Year Average	$0.0492	$ 0.017	$ 30.00	$ 0.0006	$ 0.0013	$0.0011		

* Average for last 2 years.

RECOMMENDATIONS

Studies which have provided the basis for this report indicate that in order to effectively manage the water resources of the County to the benefit of all residents, the District should continue to levy groundwater charges on all water extracted from the groundwater basin within the District's Zones W-2, W-3.1, W-3.2 and W-3.3.

Section 26.7 of the District Act currently requires that the groundwater charge in any year shall not exceed a fixed and uniform rate of $8.00 per acre-foot for agricultural water, and $30.00 per acre-foot for non-agricultural water. These rates are reasonable from a resources management point of view and are sufficient to provide the required revenue to operate and maintain the District's existing facilities and to construct, operate and maintain those additional facilities that will be required through 1975-76. Beyond 1975-76, modifications will be necessary relative to the financing of new facilities, including possible increases in water charges and tax rates. The magnitude of such increases, if any, will be dependent upon the specific construction schedule adopted in ensuing years by the Board of Directors.

Therefore, it is recommended that for the year 1972-73, the groundwater charge for agricultural water extracted from the groundwater basin within Zones W-2, W-3.1, W-3.2 and W-3.3, be continued at $8.00 per acre-foot and that the groundwater charge for water extracted for non-agricultural uses be continued at $30.00 per acre-foot.

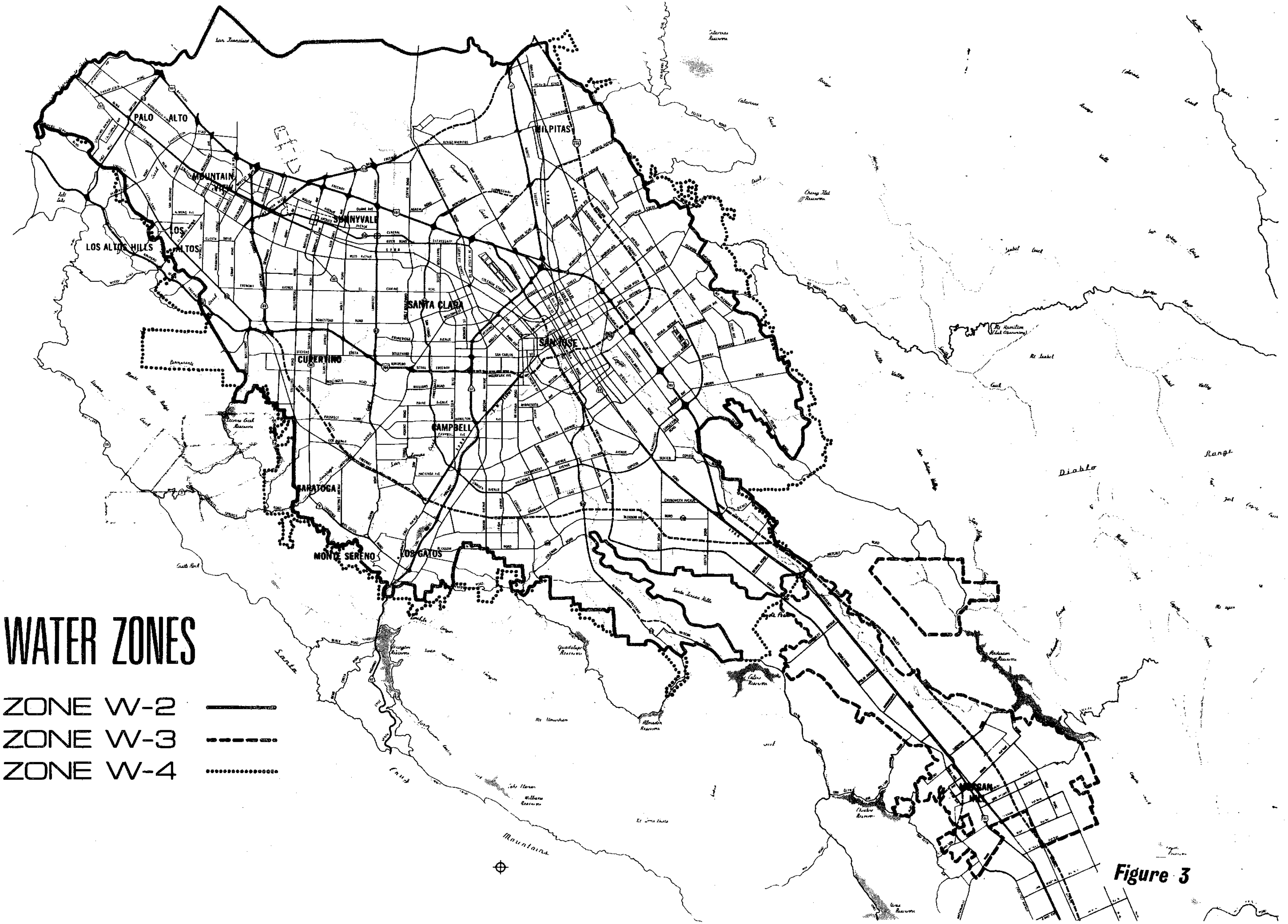
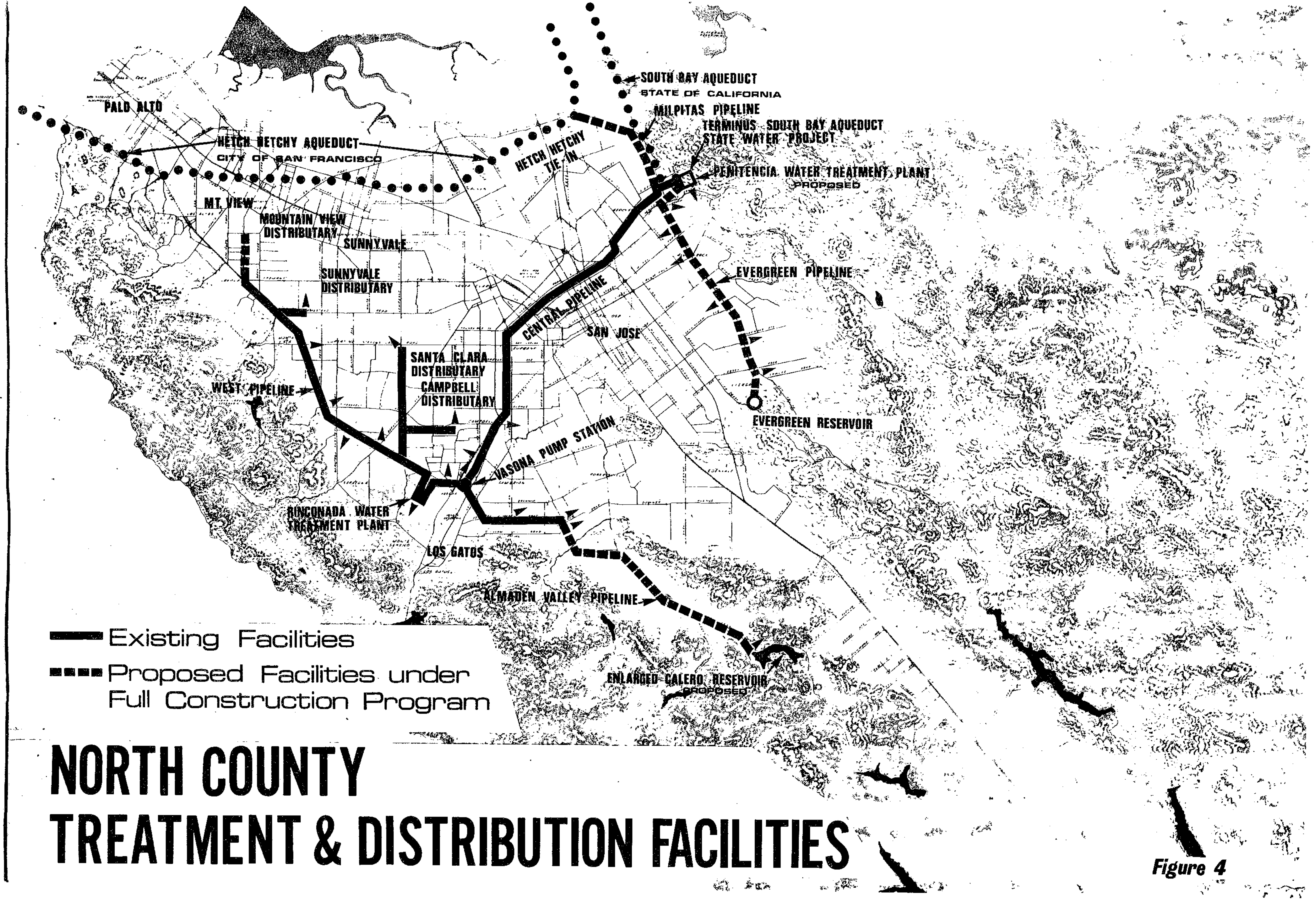

WATER ZONES
ZONE W-2
ZONE W-3
ZONE W-4
PALO ALTO
MOUNTAIN VIEW
SUNNYVALE
LOS ALTOS
LOS ALTOS HILLS
MILPITAS
SANTA CLARA
SAN JOSE
CUPERTINO
CAMPBELL
SARATOGA
MONTE SERENO
LOS GATOS
MORGAN HILL
Diablo
Range
Santa Cruz
Mountains

Figure 3



NORTH COUNTY TREATMENT & DISTRIBUTION FACILITIES

Figure 4